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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,432	06/29/2001	Edward Paul Cernocky	SOC-105	8240

7590 10/08/2003

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908 Town & Country Blvd., Suite 120  
Houston, TX 77024-2221

EXAMINER
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BLACKNER, HENRY A

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/896,432

Applicant(s)

CERNOCKY ET AL.

Examiner

Henry A. Blackner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babour in view of Guerreri.

In regards to claim 1, Babour discloses the claimed invention in figures 1-4, column 2 lines 38-45 and lines 50-67, column 3 lines 5-8, lines 12-36, lines 55-58, and lines 60-63, and column 4 lines 49-53, that a detonation device for selectively perforating a tubular body with a designated explosive charge located downhole in a well bore is comprised of a tubular body (12) and that the designated explosive charge (24), which is activated via an electronic interface (22), a power supply unit (18), and a acquisition and control system (19), is attached to the tubular body. Babour does not disclose that the detonation device is also comprised of a wireless

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receiver, a microprocessor and control means connected to the wireless receiver, an explosive bridge wire, a high voltage supply means, and an energy storage and trigger means, whereby a coded signal received by the wireless receiver is decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to the explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular body.

Guerreri teaches in figures 1-3 and 5 and column 3 lines 1-8, lines 11-26, and lines 30-51, column 4 lines 3-10 and lines 15-29, column 6 lines 57-68, and column 7 lines 1-14 and line 26, that a detonation device (10) for detonating an explosive charge is comprised of a command unit (11), a translator unit (12), a control unit (13), which is comprised of a wireless receiver (61), a microprocessor and control means (62), a firing mechanism (63), which is comprised of an electric blasting cap (104) with an explosive bridge wire and an energy storage and triggering means (110). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's remote detonation device in order to assemble a detonation device that can operate within an environment having high levels of extraneous electricity including stray ground currents, electromagnetic fields, and radio frequency energy.

In regards to claims 2-4, Guerreri discloses the claimed invention in figures 2, 3, 4, and 4a and column 3 lines 45-51, column 4 lines 30-66, column 5 lines 1-41 and lines 50-64, column 6 lines 5-9, lines 12-24, and lines 40-56, that a coded wireless signal allows selective detonation of a plurality of explosive charges individually, in sequence, and in any desired pattern.

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In regards to claim 5, Guerreri discloses the claimed invention in the rejections of corresponding parts of claims 2-4, above, that the coded wireless signal does not transmit the power that is required to detonate the explosive charges.

In regards to claim 7, Guerreri discloses the claimed invention, as identified in the rejections of corresponding parts of claims 2-4, above, that the microprocessor includes a digital signal processing logic.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guerreri in view of Neyer.

Guerreri discloses the claimed invention in figure 5 and column 6 lines 64-68 and column 7 lines 1-14, that the means for explosive charge (14) is comprised of a shape charge with a solid explosive (101), which is initiated by an electric blasting cap (104). The electric blasting cap, which comprises an explosive bridge wire, is initiated with the application of an electric current, which is applied via a capacitor discharge-blasting machine (110) and initiating switch (105), to the explosive bridge wire. Guerreri does not illustrate that the explosive bridge wire is composed of an electrical circuit that is formed on a circuit board with an aperture and a portion of the electrical circuit overlying the aperture.

Neyer teaches in figures 2 and 3 and column 2 lines 38-46 and lines 65-69 and column 3 lines 1-3, lines 11-18, and lines 23-37, that a chip slapper (40) that is composed of a ceramic substrate (20) and contains a coating of a metal film, which is etched into the shape of spaced conductive lands (14) and (16) and bridge member (42), and is deposited with a flyer layer (20) of dielectric coating. The bridge member is a curved shape, typically a circle, and includes a cavity (44). When a current is applied to the chip slapper, via the conductive lands, the bridge

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member is vaporized and produces a circular shaped flying plate (48). The circular shaped flying plate is produced by the cavity, which results in a shock wave focused to a higher pressure, due to the flying plate's ability of sticking to the substrate. The flying plate's ability to sticking to the substrate is due to the decrease in plasma driving the inner surface of the bridge member. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Neyer's improved shaped bridge slapper in order to achieve a larger shock wave to detonate an explosive, by using less energy than is required for a conventional bridge slapper.

Claims 8-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babour in view of Abouav, and further in view of Guerrieri.

In regards to claim 8, Babour discloses in figures 1-4, column 2 lines 38-45 and lines 50-67, column 3 lines 5-8, lines 12-36, lines 55-58, and lines 60-63, and column 4 lines 49-53, a method for selectively perforating a tubular body with a designated explosive charge located downhole in a well bore, which is comprised of a tubular body (12) and that the designated explosive charge (24), which is activated via an electronic interface (22), a power supply unit (18), and a acquisition and control system (19), is attached to the tubular body. Babour does not disclose a detonating devise having a wireless receiver, a microprocessor and control means connected to the wireless receiver, at least one explosive bridge wire, a high voltage supply means, an energy storage, a trigger means, and a method of transmitting a coded signal to an individual detonator device, in order to activate an individual detonator assembly among a plurality of detonator assemblies.

Abouav teaches in figure 1 and column 5 lines 45-56 and lines 62-68, that a quarry face (2) contains a number of well bores (4), which contain detonator devices (6) located in each well

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bore. The detonator devices are connected by conductors (10) to an antenna (11) for a radio transceiver (12) located in one or more of the devices. The radio transceiver receives control signals from a controller (14) via a transceiver (15) so that the detonator devices can be actuated by a wireless remote control. The detonator devices are synchronized to be activated at an establish time, after the controller has transmitted the signals for the blast to commence. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Abouav's method of activating the detonator devices in order to achieve the desired effect of activating the detonator devices in a precisely defined time sequence so that efficient use is made of the blasting materials.

Guerreri teaches, in the corresponding rejection of claim 1 above, a method of activating an individual detonator device among a plurality of detonator devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's apparatus in order to achieve the desired effect of producing a blasting system, which is comprised of a plurality of detonator devices that are individually detonated by a wireless remote command source.

In regards to claims 9-11, see rejections of corresponding parts of claims 2-4 above.

In regards to claim 12, see rejections of corresponding parts of claim 5 above.

In regards to claim 14, see rejections of corresponding parts of claim 7 above.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Babour in view of Abouav, further in view of Guerreri as applied to claim 8 above, and further in view of Neyer.

Babour in view of Abouav, and further in view of Guerreri discloses the claimed method above, but does not illustrate an electrical circuit, which is formed on a circuit board that

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contains an aperture, overlying the aperture in order to form an explosive bridge wire, that when energized by an application of power, will flash vaporize causing detonation of a nearby explosive charge.

Neyer teaches, in the corresponding rejection of claim 6 above, an electrical circuit that overlies an aperture of a circuit board in order to form an explosive bridge wire. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Neyer's improved shaped bridge slapper in order to achieve a larger shock wave to detonate an explosive, by using less energy than is required for a conventional bridge slapper.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection. Prior art does disclose that wellbore tubulars are perforated using charges attached to the tubular with a system that is presently claimed.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents show the state of the art in the field of remote detonation of explosive charges.

U.S. Patent No. 5,660,232 to Reinhardt

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**



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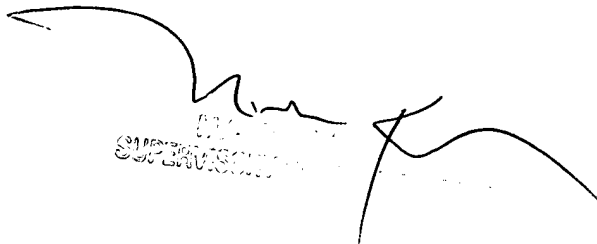
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry A. Blackner whose telephone number is 703-305-4799. The examiner can normally be reached on 09:15 - 17:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5771.

hab  
29 September 2003

A handwritten signature in black ink, appearing to be 'H. A. Blackner', is written over a rectangular stamp. The stamp contains the text 'SUPERVISOR' and 'MICHAEL CARONE' in a bold, sans-serif font. The signature is written in a cursive style, with the first name 'H.' and last name 'Blackner' clearly visible.